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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,182	01/18/2002	Pier Giuseppe Pelicci	Mewburn	6367

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EXAMINER	
ANGELL, JON E	

ART UNIT	PAPER NUMBER
1635	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/937,182	PELICCI ET AL.	
	Examiner	Art Unit	
	J. Eric Angell	1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 May 2007*.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38 and 42-52* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-38 and 42-52* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Action is in response to the communication filed on 5/23/07.

Claims 1-38, 42-52 are currently pending and are addressed herein.

The communication filed 5/23/07 which is in response to the election/restriction requirement mailed 2/23/07 is acknowledged and has been fully considered. Applicants made a proper election with traverse and made arguments for the rejoinder of at least some of the claims that were restricted from the elected Group (e.g., see page 13 of Applicants 2/23/07 response). Upon further consideration, and in view of Applicants arguments, it has been determined that rejoinder of some of the previously restricted claims was necessary. Furthermore, it was also determined that additional restriction within the elected Group was also required, especially in view of the amendment filed 5/23/07 which adds new claims embraced by the elected Group which necessitate further election. Rather than holding Applicants to their election and rejoining claims with the elected group and issuing a further restriction requirement within the elected Group, the previous election/restriction requirement is hereby vacated and a new election/restriction requirement is set forth herein. Applicants now have an opportunity to elect any Group of the new election/restriction requirement and are not bound their previous election.

New Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-8, 44 drawn to a nucleic acid sequence having a p66shc coding sequence, including a sequence encoding a mutant p66shc molecule as well as a vector/expression system comprising said nucleic acid sequence, a cell transformed with the vector, a method of producing a modified p66shc polypeptide and a polypeptide encoded by the sequence of claim 1.

Group II, claim(s) 9, 10, 12, 19, 20-25, 27, 36, 37, 46-52, drawn to a method of modulating resistance in cells to oxidative stress by disrupting the p66shc signal transduction pathway in a cell, said method comprising the step of contacting said cell with an agent capable of modulating p66shc expression wherein the agent is a nucleic acid molecule capable of hybridizing to nucleic acid encoding p66shc thereby reducing or preventing p66shc expression wherein the agent is administered for the treatment of a disease. **Should Applicants elect this Group further election of a single disease, as indicated below, is also required.**

Group III, claim(s) 9, 12-17, 22, 27, 36, 44, 48, 49, 52, drawn to a method of modulating resistance in cells to oxidative stress by disrupting the p66shc signal transduction pathway in a cell wherein the step of disrupting p66shc affects the susceptibility of p66shc to phosphorylation, wherein said step of disrupting p66shc causes a mutant p66shc polypeptide to be expressed or affects the ability of a kinase to phosphorylate p66shc, wherein the method is for the treatment of a disease. **Should Applicants elect this Group further election of a single disease, as indicated below, is also required.**

Group IV, claim(s) 9, 12, 18, 22, 26, 27, 36, 38, 48, 49, 52, drawn to a method of modulating resistance in cells to oxidative stress by disrupting the p66shc signal transduction pathway in a cell, said method comprising the step of contacting said cell with an agent that is an antibody that specifically binds p66shc polypeptide thereby disrupting its function, wherein the agent is administered for the treatment of a disease. **Should Applicants elect this Group further election of a single disease, as indicated below, is also required.**

Group V, claim(s) 9, 11, 28, 29, 31, 44, 45, drawn to a method of modulating resistance in cells to oxidative stress by affecting the p66shc signal transduction pathway in a cell, said method comprising the step of contacting said cell with an agent capable of modulating p66shc expression wherein the agent is a vector comprising a nucleic acid encoding p66shc wherein the agent is administered for the treatment of a disease. **Should Applicants elect this Group further election of a single disease, as indicated below, is also required.**

Group VI, claim(s) 9, 28, 29, 30, drawn to a method of modulating resistance in cells to oxidative stress by affecting the p66shc signal transduction pathway in a cell, said method comprising the step of contacting said cell with an agent capable of modulating p66shc expression wherein the agent is a transcription factor wherein the agent is administered for the treatment of a disease. **Should Applicants elect this Group further election of a single disease, as indicated below, is also required.**

Group VII, claim(s) 32-35, 44, drawn to a method of screening for compounds capable of modulating resistance in cells to oxidative stress comprising contacting a candidate compound with a p66shc expression system and determining the amount of a compound of the signaling pathway and comparing said amount of said component with the amount in the absence of the compound.

Group VIII, claim(s) 42, drawn to a method of determining the presence or absence of a p66shc nucleic acid or a mutant, variant derivative or allele thereof in a biological sample, comprising the step of contacting said sample with a nucleic acid molecule capable of hybridizing specifically with said p66shc nucleic acid or a mutant, variant derivative or allele thereof and determining whether or not hybridization has taken place.

Group IX, claim(s) 43, drawn to a method of determining the presence or absence of a p66shc polypeptide or a mutant, variant derivative or allele thereof in a biological sample, comprising the step of contacting said sample with an antibody binding domain capable of binding p66shc thereof and determining whether or not binding has taken place.

Furthermore, should Applicants elect any one of Groups II-VI, further election of one of the following patentable distinct diseases of which the elected method treats is also required (see claims 27 and 52): lung emphysema, myocardial infarction, stroke premature aging, cell senescence, Parkinson's, Alzheimer's, cancer, diabetes, arteriosclerosis, ischemic heart disease, premature aging, and cell senescence. These diseases do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the they lack the same or corresponding special technical features for the following reasons: each disease represents a distinct disease, wherein each disease has a distinct etiology and wherein a treatment of any one disease may not enable the treatment of any of the other diseases. Furthermore the broad claim linking Groups II-VI (claim 9) is not novel for the reasons indicated below, thus the treatments are not linked by a special technical feature.

The inventions listed as Groups I-IX do not relate to a single general inventive concept under

PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special

technical features for the following reasons: there is no special technical feature linking the inventions. In order for groups of inventions to have unity of invention, they must be linked by a "special technical feature". As indicated in PCT Rule 13.2, the expression "special technical features" shall mean those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art. Therefore, if a technical feature linking the inventive groups is not novel, it is not a "special technical feature". In the instant case, all of the claims encompass or embrace a nucleic acid encoding a p66shc and/or a p66shc polypeptide, and/or a method that comprising administering a nucleic acid encoding a p66shc polypeptide to a cell. It is noted that give its broadest reasonable interpretation, the phrase "a p66shc polypeptide" encompasses wild-type p66shc as well as mutants, variants, fragments thereof. Applicants attention is directed to broad claims 9 and 44. Claim 1 encompasses a nucleic acid molecule comprising a p66shc coding sequence incorporating at least one mutation as compared to the wild type sequence such that the protein encoded by the coding sequence has at least one serine residue absent. At least Group I embraces the mutants of claim 1. Claim 9 is drawn a to method of modulating resistance in cells to oxidative stress by affecting the p66shc signal transduction pathway in a cell, said method comprising the step of contacting said cell with an agent capable of modulating p66shc gene expression. Claim 9 embraces or is embraced by at least inventive Groups II-VI. Claim 44 is drawn to an expression system comprising a nucleic acid vector having a p66shc coding sequence or fragment thereof inserted therein. Claim 44 embraces or is embraced by at least inventive Groups I, V and VII. Furthermore Groups VI, VIII and IX embrace a p66shc polypeptide and/or a nucleic acid encoding a p66shc polypeptide. Therefore, all of the claims, and thus all inventive Groups embrace a p66shc polypeptide or a

nucleic acid encoding a p66shc polypeptide. Accordingly, the technical feature the links all of the indicated inventive groups is a p66shc polypeptide or a nucleic acid encoding a p66shc polypeptide. However, a p66shc polypeptide (including a p66shc mutant), as well as an expression system comprising a nucleic acid that encodes a p66shc polypeptide as well as a method of expressing a p66shc polypeptide in a cell by transfecting the cell with a nucleic acid which encodes a p66shc polypeptide was known in the prior art. For instance, Migliaccio et al. (EMBO Journal, 1997, cited by Applicants in the 12/11/2002 IDS) teaches a plasmid which expresses p66shc transfecting a cell with the plasmid thus modulating (i.e., increasing) expression of a p66shc polypeptide in the cell (e.g., see page 709, column 2; page 710, column 1; page 714, column 2; page 715, column 1). It is noted the increasing expression of p66shc in a cell, such as by the method taught by Migliaccio et al. would necessarily modulate resistance to oxidative stress in the cell. Migliaccio et al. also teach p66shc mutants embraced by claim 1, including p66shc-TTGs and a mutant comprising amino acids 1-110 and just the CH2 domain (e.g., see abstract; the paragraph bridging pages 714-715; Figures 5-9; etc.). Therefore, Migliaccio et al. teaches a p66shc polypeptide, a nucleic acid encoding a p66shc polypeptide (and mutants thereof that lack a serine residue) and a method of expressing a p66shc polypeptide in a cell by transfecting the cell with said nucleic acid. Accordingly, in addition to teaching technical feature which links the inventive groups, Migliaccio et al. anticipates claims 1, 9 and 44. As such, the technical feature linking the inventive Groups I-IX is not a "special technical feature" and separation of the claims into the indicated inventive groups is appropriate.

Additionally, Applicants are respectfully reminded that 37 CFR 1.475(b) states:

"An international or a national stage application containing claims to different

categories of invention will be considered to have unity of invention if the claims are drawn **only** to one of the following combinations of categories:

(1) A product and a process specially adapted for the manufacture of said product; or

(2) A product and process of use of said product; or

(3) A product, a process specially adapted for the manufacture of the said product, and a use of the said product; or

(4) A process and an apparatus or means specifically designed for carrying out the said process; or

(5) A product, a process specially adapted for the manufacture of the said product, and an apparatus or means specifically designed for carrying out the said process.

37 CFR 1.475(c) states:

"If an application contains claims to more or less than one of the combination of categories of invention set forth in paragraph (b) of this section, unity of invention might not be present."

37 CFR 1.475(e) further states:

"The determination whether a group of inventions is so linked as to form a single general inventive concept shall be made without regard to whether the inventions are claimed in separate claims or as alternative within a single claim."

In view of 37 CFR 1.475 (b), 37 CFR 1.475 (c), and 37 CFR 1.475 (e), and in view of Migliaccio et al., the requirement for election of one of the indicated inventive Groups is appropriate.

2. This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

The species are as follows:

Group I embraces a number of distinct p66shc mutants (see claims 2, 3, 4) wherein each mutant is structurally and functionally distinct molecules. Furthermore, Migliaccio et al. also teach p66shc mutants embraced by claim 1, including p66shc-TTGs and a mutant comprising amino acids 1-110 and just the CH2 domain (e.g., see abstract; the paragraph bridging pages 714-715; Figures 5-9; etc.).

Group III embraces two distinct serine/threonine kinases: p38 and MAPK (see claim 17) p38 and MAPK are well known structurally and functionally distinct molecules.

Should Applicants elect Group I, Applicant is required, in reply to this action, to elect ONE of the claimed p66shc mutants to which the claims shall be restricted if no generic claim is finally held to be allowable

Should Applicants elect Group III, Applicant is required, in reply to this action to elect ONE of the claimed kinases to which the claims shall be restricted if no generic claim is finally held to be allowable.

The reply must also identify the claims readable on the elected species, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the

limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

The following claim(s) are generic: Claims 1-8 are generic to the species of p66shc mutants and claims 12 and 17 are generic to the species of kinases.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the

application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. Eric Angell whose telephone number is 571-272-0756. The examiner can normally be reached on Monday-Thursday 8:00 a.m.-6:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Douglas Schultz can be reached on 571-272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. E. Angell/
Primary Examiner
Art Unit 1635